# cientific ewage

for Country and Suburban HOMES\*



## Septic Tanks



This septic tank—made by Kaustine of genuine Armco Ingot Iron—is a product you can unconditionally recommend and endorse.

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# The Advantages of Kaustine Septic Tanks

THE advantages of Kaustine Septic Tank installations can scarcely be estimated. They remove the last barrier to comfortable living in the sections not served by city sewers.

Now, with a Kaustine Armco Ingot Iron Septic Tank properly installed all household wastes are taken care of just as satisfactorily as could be possible with city sewers, and families can live in rural or suburban districts safe in the knowledge that their surroundings are both healthful and sanitary.

IN THE SUBURBS—or in the country— Kaustine Septic Tanks are an inexpensive solution of your sewage disposal problem. With a Kaustine installation you can have all the conveniences of a modern city home.

3

## How Kaustine Septic Tanks Operate

THE problem in sewage disposal is the removal of the organic matter and the harmful bacteria present. Kaustine Septic Tanks are made to perform this service according to scientific principles.

Sewage consists of a small amount of organic matter in a large amount of water—in the ratio of about 2 parts of solid matter to 998 parts of water.

Two processes take place in a septic tank—the settling of the heavy solids to the bottom of the tank and

A KAUSTINE SEPTIC TANK takes care of every household need—the bathroom, lavatory, toilet, sink, and laundry—and the cost is surprisingly low. Even for schools, factories, camps and entire communities the cost is moderate.

the rising of the lighter to the surface; and the biological or bacterial action by which the solid matter which has been settled out is changed from a solid state into its component parts of liquid and gas. This breaking-down process is known as septic action.

The process of disintegration known as anaerobic decomposition is brought about by the bacteria working in the absence of air. During the breaking-down process of the more complex organic matter into its simpler forms a gas is formed, and the gas bubbles rising to the surface carry with them small particles of solid matter which, added to the greasy wastes, forms the floating scum. This scum tends to assist in excluding air from the

KAUSTINE SEPTIC TANK installations perfectly meet modern sanitary requirements. They are endorsed by health authorities, architects, and plumbers everywhere. Moreover, Kaustine Tanks are inexpensive to buy and easy to install.

sewage. On account of the bacterial action on the solid matter at the bottom of the tank, not only is its character changed but its volume is considerably reduced. Therefore, years pass before the amount accumulated at the bottom of the tank is sufficient to interfere with the clarification of the liquid.

In addition to the septic tank treatment, dilution or absorption must be provided for final disposal. Hence, the laying of parallel lines of porous tile with open joints, as shown on subsequent pages, is the final step in a Kaustine Septic Tank installation.

REMEMBER—Kaustine Septic Tanks are the only septic tanks made of genuine Armco Ingot Iron to protect you against deterioration and possible property damage. You can always be sure of Kaustine quality—it is the standard of septic tanks.

## Pioneers in Sewage Disposal

THE Kaustine Company Inc. has always played a leading and representative part in the field of sewage disposal.

The first to manufacture a metal septic tank, the members of this organization have been thoroughly awake to the present-day requirements and to the latest developments in the art of sewage disposal. And now, after years of investigation and experiment, the Kaustine Septic Tank is produced as a finished product—constructed according to the latest scientific developments and from materials whose quality is nationally recognized.

KAUSTINE SEPTIC TANKS are the product of years of investigation and experiment by sanitation engineers. They are scientifically designed for satisfactory performance, and the services of Kaustine Sanitation Engineers are available always.

At a considerable increase in manufacturing cost, Kaustine Company Inc. have adopted the use of Armco Ingot Iron (a product of the American Rolling Mill Company) exclusively in its tank construction. Long recognized as the worthy opponent of rust, Armco Ingot Iron insures to users of Kaustine equipment the longest life of any metal used in septic tank construction.

Commercially pure iron such as Armco Ingot Iron outlasts steel, even though steel be covered with a protective coating of zinc. The reason for this lasting quality is that Armco Ingot Iron in the course of its manufacture is freed as far as is practicable of the impurities and gases which shorten the life of sheet metal. Armco Ingot Iron never contains more—and

KAUSTINE SEPTIC TANKS cost no more than ordinary septic tanks. Yet there is no other septic tank you can buy that is made of the same high-grade materials, or that has the same high standard of quality, or that is so highly respected.

generally less—than ½ of one per cent of the usual impurities; 99.84% is the standard of comparison of the purity of Armco Ingot Iron against that of the other sheet metals on the market.

Durability of materials is considered of vital importance in eavestroughs, spouting and similar work where inspection and supervision can be maintained. Surely, it is of vastly greater importance in septic tanks placed beneath the surface of the ground. In adopting Armco Ingot Iron, therefore, the Kaustine Company protects on the one hand the plumber making the installation against dissatisfaction on the part of his client, and on the other the user against deterioration which may ultimately result in life and property damage.

IN ADDITION to being made of Armco Ingot Iron, recognized for many years as the standard in its field, Kaustine Septic Tanks are enameled inside and out with Hermastic Enamel—an added precaution against rust and deterioration.

Kaustine Armco Ingot Iron Septic Tanks embody in their manufacture not only original ideas of design but also special materials. The design promotes to a greater degree the breaking down of the more complex organic matters into simpler forms. The special materials are the use of Armco Ingot Iron exclusively in the manufacture of the tank, and the coating of all tanks inside and outside with Hermastic Enamel. The top is easily removable so that access can be had at any time to the interior. Numbers 62 and 63 are vertical tanks designed to serve home installations of seven and ten persons, respectively. They are made of No. 14 gauge Armco Iron.

Number 82—seven-person size, horizontal type—is easy to install, due to its depth being only 38". Access to the interior is provided by two openings, one at each end. This model, unlike Numbers 85, 87, etc., does not have manhole extensions, but is provided with covers that fit snugly to the top of the tank and are held firmly

in place by bolts.

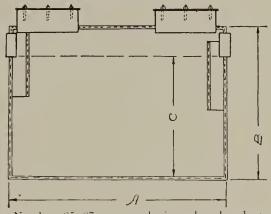
#### Specifications of both types of tanks tabulated below

	Dimensions	Net	Catalog
Hon	Diameter—Depth	Gallons	No.
7	38" x 48"	200	62
10	48" x 48"	320	63

HORIZON

Catalog	Net	Dimensions	
No.	Gallons	Diameter—Length	Home
82	200	38" x 48"	7
85	515	48" x 72"	
87	750	48" x 100"	_
813	1300	64" x 100"	
816	1600	64" x 125"	_
820	2000	65" x 144"	
825	2500	65" x 180"	_
829	2900	65" x 216"	_
834	3400	65" x 252"	
839	3900	65" x 288"	_
843	4300	65" x 324"	_
847	4700	65" x 360"	
851	5100	65" x 396"	

#### Kausline



Numbers 85, 87, etc., are horizontal tanks adapted for use where larger capacities are required. Numbers 85 and 87 are made of No. 14 gauge, Numbers 813 and 816 of No. 12 gauge, and Numbers 820, etc., of 36" (No. 7 gauge) Armco Ingot Iron.

Tumber of Perso	umber of Persons Accommodated Wei		Weight Lbs.
Hotel	Factory	School	Lbs.
8 12	12 20	$\frac{15}{25}$	260 330

#### ANKS

imber of Persons Accommodated		Weight	
Hotel	Factory	School	Lbs.
8	12	15	260
$\frac{8}{25}$	35	40	415
37	50	60	560
65	85	110	1070
80	110	135	1320
100	135	165	2100
125	170	210	2500
145	190	240	2900
165	230	280	3300
195	260	325	3700
220	280	360	4100
240	320	390	4500
260	340	425	4900



## Kaustine

Super-Septic Tanks
For installations where quality materials

plus improved design are desired, the Kaustine Super-Septic Tanks are recommended. Constructed of Armco Ingot Iron through-

#### KAUSTINE SUPER-SEPTIC

Cat.	Dimensions	Total	Working
No.		Capacity	Capacity
112	38 x 50"	245 Gals.	200 Gals.
113	48 x 50"	390 Gals.	320 Gals.
114	55 x 60"	615 Gals.	535 Gals.
115	65 x 60"	860 Gals.	735 Gals.
116	75 x 60"	1150 Gals.	1000 Gals.
117	92 x 60"	1700 Gals.	1500 Gals.

out, coated with Hermastic Enamel, and made under Kaustine supervision according to Kaustine specifications, this tank is unique in the field of sewage treatment. The patented interior design of the baffle, whence the tank derives its name, provides for a flow of sewage three times as long as that of the ordinary vertical types of tanks. The design of the baffle is such that there is no interference to the progress of the sewage from inlet to outlet. This provides for a uniform flow over the entire cross section, the elimination of stagnant areas, and the more even deposition of the solid matter over the bottom of the tank, insuring better bacterial action and a higher degree of clarification.

Numbers 112, 113, and 114 are made of No. 12 gauge, Numbers 115, 116, and 117 of No. 10 gauge Armco Ingot Iron. The specifications of Super-Septic Tanks are tabulated below.

#### SPECIFICATIONS

Home	Hotel	Factory	School
7 Persons	8 Persons	10 Persons	12 Persons
0 Persons	12 Persons	15 Persons	20 Persons
7 Persons	20 Persons	25 Persons	32 Persons
5 Persons	30 Persons	35 Persons	50 Perso
35 Persons	50 Persons	65 Persons	80 Person
50 Persons	75 Persons	100 Persons	125 Person

# Questions and Answers on the Installation of Kaustine Enameled Armco Iron Septic Tanks

 Ques. How shall capacities of Kaustine Septic Tanks be arrived at?

Ans. For single house installations, 30 gallons daily per capita is generally accepted; for schools, 10 or 12 gallons daily for each pupil; for institutions and villages, 50 gallons daily per capita.

2. Ques. Where should the Kaustine Septic Tank be

placed?

Ans. It may be placed up to within 5 feet of the house. Never on the lowest point of the lot. It must be so situated that surface and rainwater will drain away from it.

3. Ques. How deep should a Kaustine Septic Tank be

placed underground?

Ans. For most climates in the United States, a depth of 12" is sufficient. In Northern United States and Canada, a greater depth will insure better bacterial action during the winter, if this depth can be secured without interfering with the elevation of the tile bed.

4. Ques. On what slope should sewer from house to

Kaustine Septic Tank be laid?

Ans. Wherever practical, a minimum slope of 14" to the foot should be maintained.

5. Ques. What is the effect of grease on the Kaustine Scotic Tank and the tile lines?

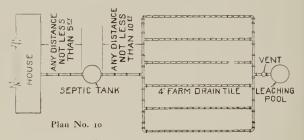
Ans. Grease in a Septic Tank retards bacterial action. In the absorption bed it clogs the pores of the earth. Where large amounts of greasy wastes are to be disposed of, grease separators should be installed.

6. Ques. What is the proper slope of the pipe from the Kaustine Septic Tank to the beginning of the absorption bed?

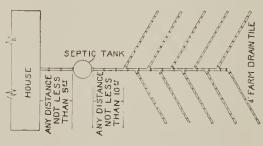
Ans. The line from the Septic Tank should be laid on a 3% slope, that is, equivalent to a 3-foot vertical drop in every 100 feet horizontal.

- 7. Ques. On what grade should the absorption tile be
  - Ans. The tile lines should not be laid on a grade steeper than 6 inches drop in 100 feet horizontal and this for the most porous soils only. In the heavier soils, a drop of 2 inches in 100 feet is better.
- 8. Ques. What shall be done when the soil is of clay or some other equally impervious material?
  - .Ins. Put the tile lines in trenches in which loose stone or gravel has been placed.
- 9. Ques. How deep should the absorption tile be laid? Ans. A covering of 12 inches is usually sufficient, in colder climates, such as northern part of the United States and Canada, depth ranging anywhere from 12 inches to 30 inches may be used. However, the closer the absorption tile is kept to the surface of the ground the quicker the effluent will receive its necessary supply of oxygen.

#### Simple Installation Plans

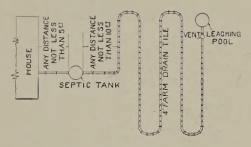


This type of installation provides the best distribution and assures proper aeration of the effluent. Where soil is semi-porous, the leaching pool can be eliminated. If soil is clay, a leaching pool the size of the tank should be provided.



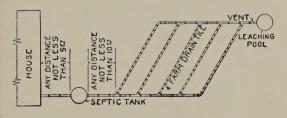
Plan No. 11

This type of installation should be used only where soil is porous; will readily absorb the effluent, and where plenty of room is available.



Plan No. 12

This arrangement should be used where the sewage installation is on a hillside or where the ground slopes steeply. The absorption bed is laid in long lines as indicated, practically level around the hill. The short lines carry the effluent from the one level to the next one below.



Plan No. 13

This plan may be used with either porous or nonporous soils. In porous soils the leaching pool may be eliminated; in non-porous soils same leaching pool as recommended in Plan 10 should be used. In either case a vent should be provided as indicated.

#### Tile Requirements For Homes



Very Porous and Sandy Soil, 20 ft. per person

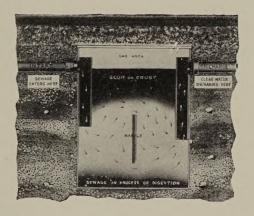
In Ordinary Porous Earth Soil, 25 ft. per person

In Semi-Porous Soil, 30 ft. per person In Non-Porous

Soil, 35 ft. per person

In non-porous soils in addition to the amount of tile indicated, the trenches should be specially prepared as set forth in Question and Answer No. 8, preceding.

Cross-Sectional View of Kaustine Armco Ingot Iron Septic Tank



THIS view shows the superior arrangement of the Kaustine baffle. The construction utilizes the entire capacity of the tank, precluding the possibility of any unsettled sewage passing out; a condition which does not exist when baffle is carried to the bottom of the tank.

## Kaustine Company Inc.

PERRY, N.Y.